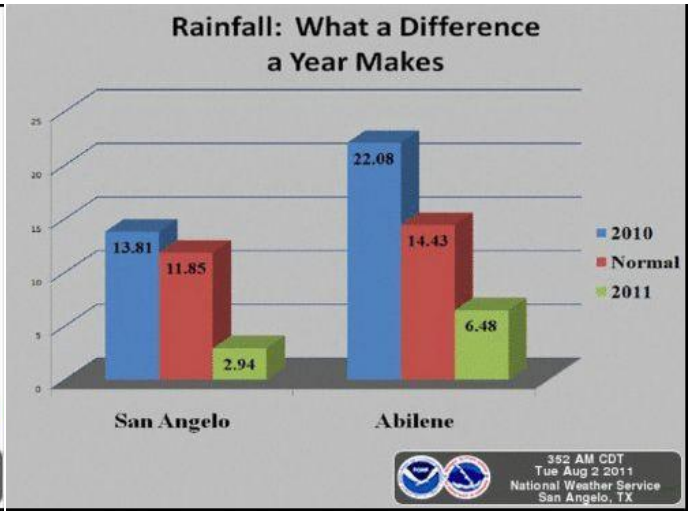
Rainfall in West Central Texas: What a difference a year makes...again!

I'm sure we all remember way too well the lack of rain and very hot temperatures across the area last year. Numerous high temperature records were broken across the state during the summer, and many areas saw one of the driest years on record. The wildfire season was one of the worst we have ever seen (over 23,000 fires burned more than 3.8 million acres across the state). As a quick review, here are some of the statistics and graphics from last year:

Abilene: **Second warmest year on record (since 1886)**
81 days of 100 degrees or more (past record was 46 in 1934)
16.83 inches of precipitation for the year (24.82 is normal)
Twentieth driest year on record

San Angelo: **Warmest year on record (since 1907)**
100 days of 100 degrees or more (past record was 60 in 1969)
9.21 inches of precipitation for the year (21.25)
Third driest year on record



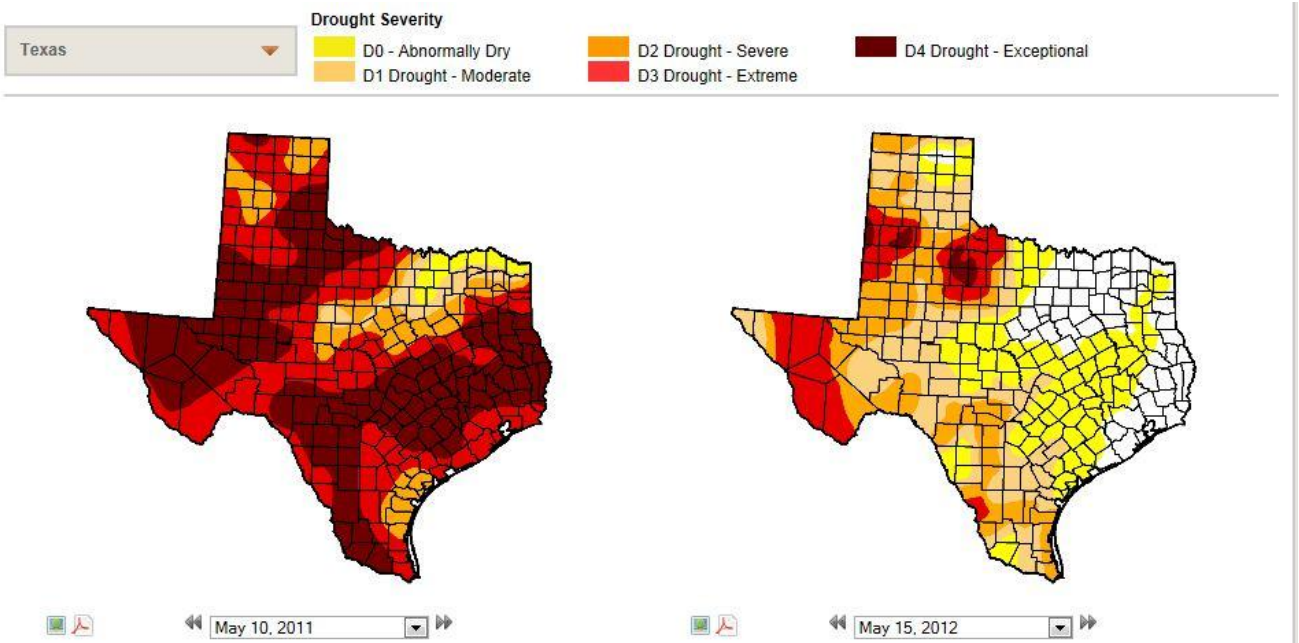
(These graphics were created at the beginning of August last year. The rainfall graphic shows precipitation from Jan 1 – July 31, 2011)

So, how are we doing now? So far this year, we have seen a great improvement in precipitation for some areas. The statistics for San Angelo are amazing. As of May 15, San Angelo has received 12.56 inches of precipitation (normal for this time is 6.51). We have gone

from the third driest year on record, to being on pace for the third wettest year on record! Abilene has seen 8.53 inches of precipitation so far (normal is 7.28). Temperatures, however, have still been quite warm. We recorded the third warmest April on record for San Angelo, and fourth warmest for Abilene. Luckily, Abilene has only hit 100 degrees three times this year, and San Angelo has hit it 4 times.

Drought

Drought is defined in many ways, from meteorological drought (rainfall deficits) to agricultural drought, to water supply. The multi-agency US Drought Monitor tracks many drought-related inputs and creates weekly graphics depicting drought conditions across the country. The graphic below compares the drought conditions across the state for May from last year to this year. Although there is great improvement across the state, water supply is still a major problem for several communities, including San Angelo and Robert Lee.



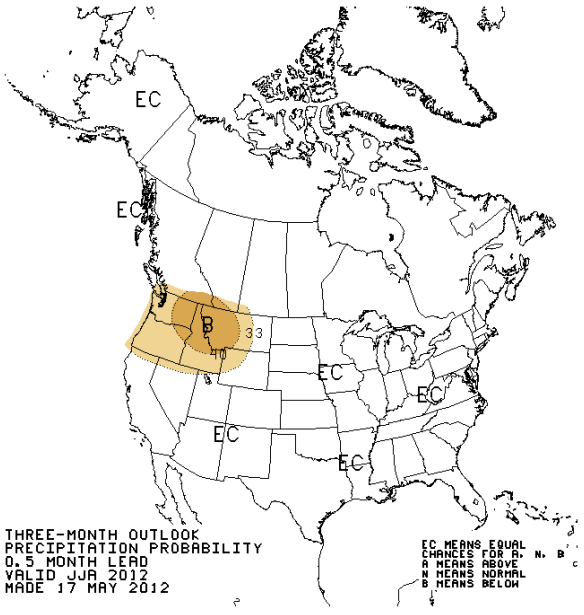
http://droughtmonitor.unl.edu

So, What Happened?

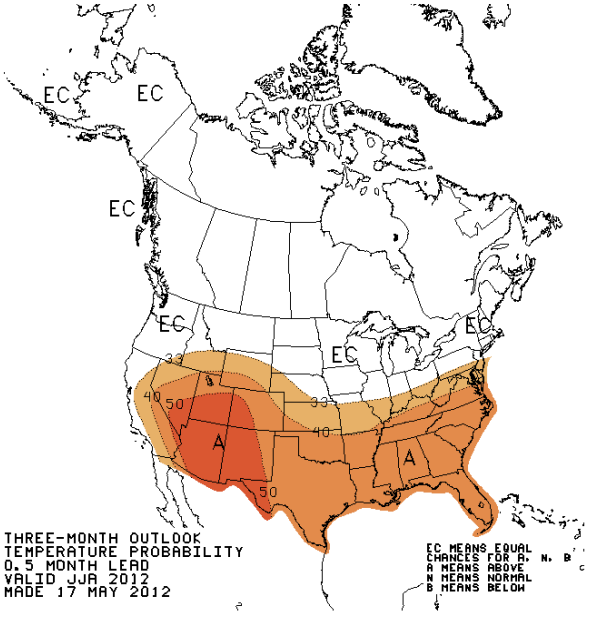
There are many factors that control temperature and rainfall patterns for any area. West Central Texas is especially prone to the effects of El Niño and La Niña (warmer/cooler waters off the coast of South America in the Pacific). During La Niña winters, we typically see less rainfall, and El Niño winters bring more rainfall to the area. Last year, we were in the middle of a strong La Niña winter, and this year, we are currently transitioning to El Niño conditions. The story is much more complicated than that, though. There are many sea surface temperature patterns which change the path of the jet stream and affect the weather across the globe. Last year, the dry weather continued into the summer partly due to areas of warm temperatures in the north Atlantic and north Pacific. We are waiting to see how these patterns will affect this area for the upcoming summer.

The Outlook

The Climate Prediction Center creates temperature and precipitation outlooks for the US. The current summer outlook graphics are below for the three month period of June-August.



Precipitation Outlook

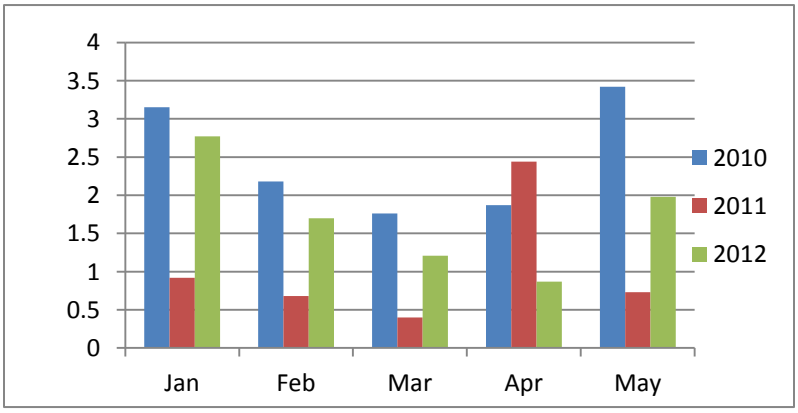


Temperature Outlook

For precipitation this summer, we have an equal chance (EC) of seeing above normal, normal, or below normal rainfall. This means there is no strong signal in the weather pattern to indicate one way or the other. So far, we have seen above normal precipitation for the year, but we don't know if this trend will continue. Since El Niño mainly affects winter precipitation, it is not a big player in our summer rainfall outlook.

The temperature outlook indicates a better chance of above normal temperatures (A) for the area. We have already seen a warm winter and spring, and the outlook indicates the summer will likely be warmer than normal as well. This does not help our water supply problem. Hot temperatures lead to greater evaporation from reservoirs and rivers across the area. So, despite the increased rainfall over the area, we are not out of the drought yet. We will be watching the tropics closely this summer, since remnants of tropical storms and hurricanes usually bring abundant rain after landfall. There is no way to predict these storms very far out into the future, though.

Abilene Monthly Precipitation 2010-2012



San Angelo Monthly Precipitation 2010-2012